

Suburban SW12DE dual propane and electric water heater troubleshooting

12 volt DC section troubleshooting:

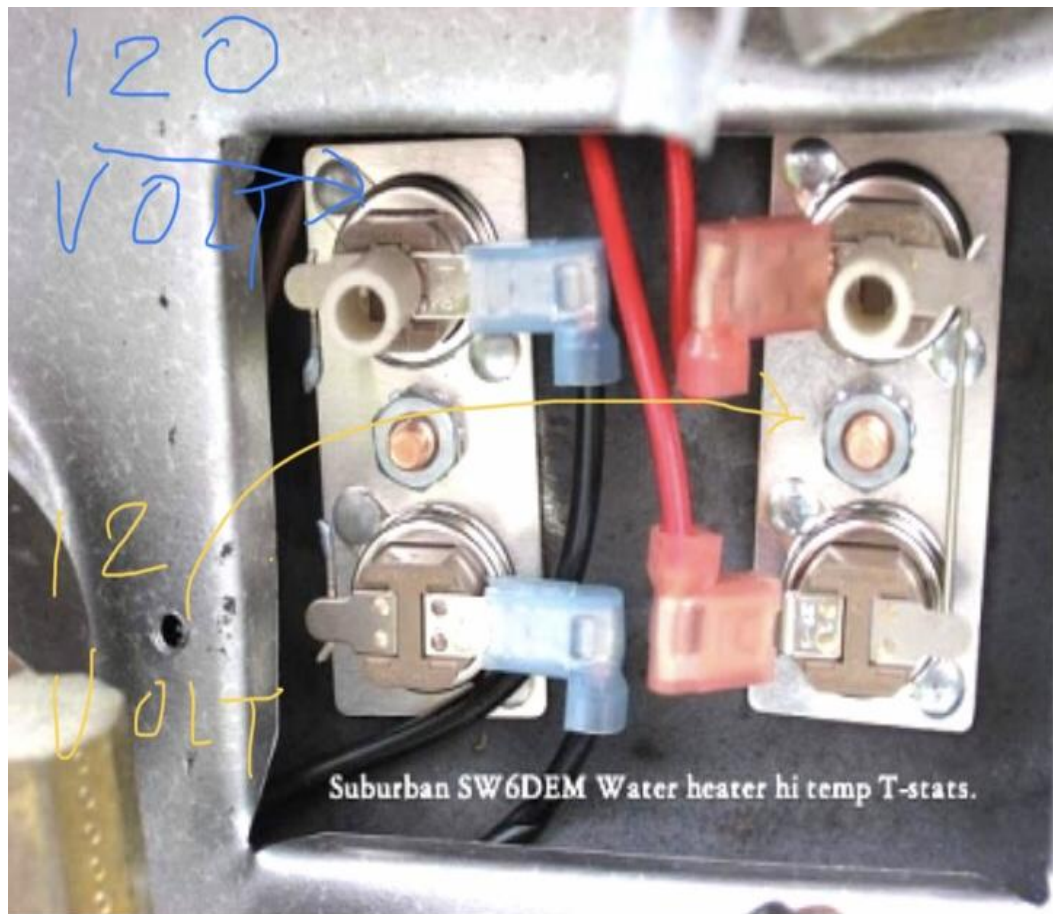
1. Verify you have good 12 volts DC from either battery or converter if plugged into shore power... the water heater requires 12 volts for the control module to function as well as igniter and dual gas solenoid valves
2. Press reset button on the right to verify it's reset... this will open up if the water heater got too hot

Reset buttons for overtemp



The one on the right is for 12 volt DC operation and one on the left is for 120VAC

Same reset buttons with cover removed



3. Have a helper turn water heater switch to ON inside RV while listening for DSI “popping sound” while standing outside at water heater
4. At the same time place a finger on each of the black solenoids on the gas valve at water heater...you should easily feel each solenoid make a “thunk” indicating BOTH solenoids opened.
5. Both solenoids MUST open.. if one fails to open you will get no propane flow and furnace will not fire up

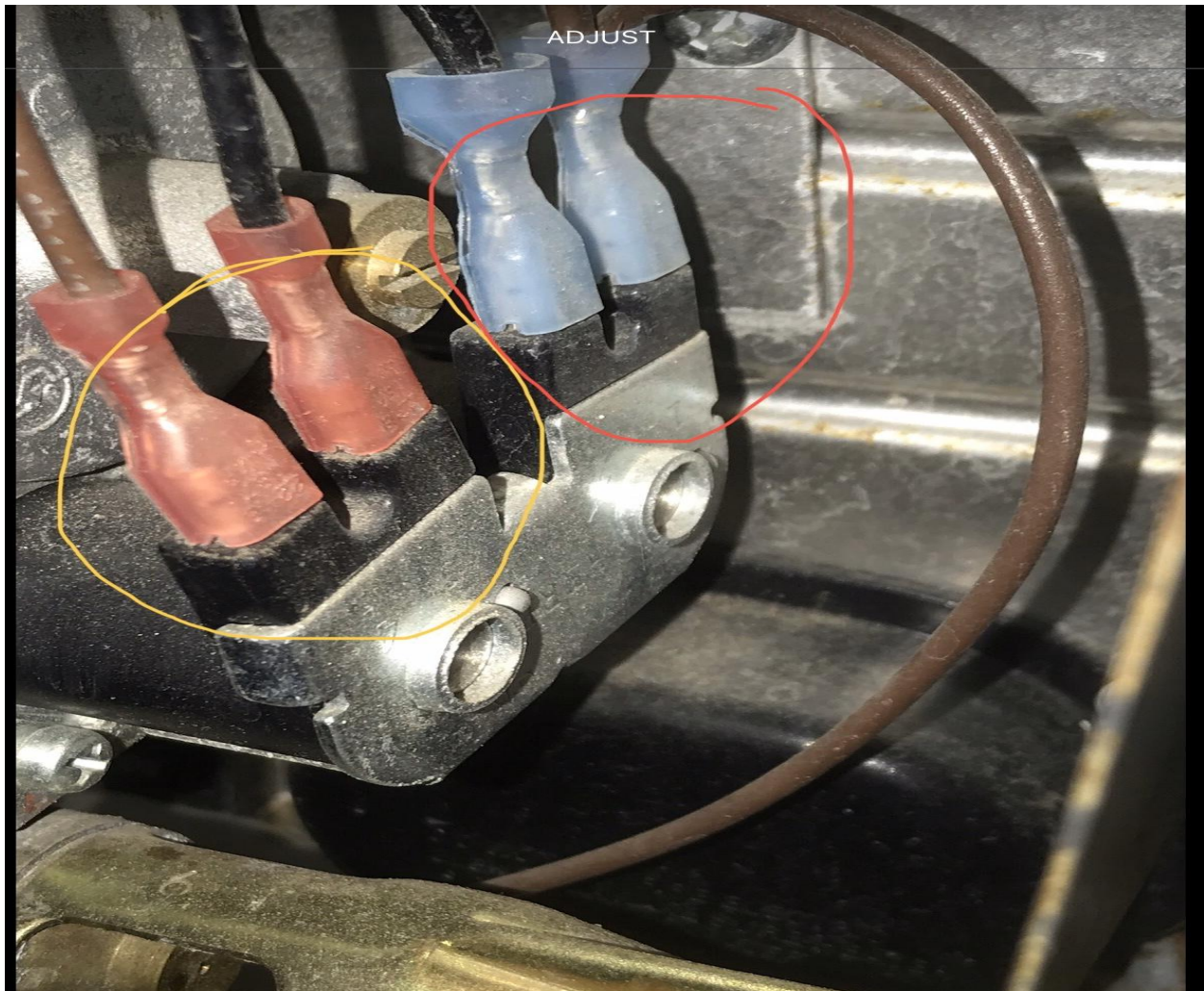
Place finger over each of the two solenoids to feel “thunk” when they open..theses are 12 volt DC so no worries about shocking yourself



If you don't “feel a thunk” we can isolate whether you have an issue of NO 12 volts DC to one of the solenoids OR both and we can also verify both solenoids are either good or bad..

These can be replaced separately and are inexpensive compared to complete gas solenoid assy

6. How to measure each solenoid and verify if good or bad...



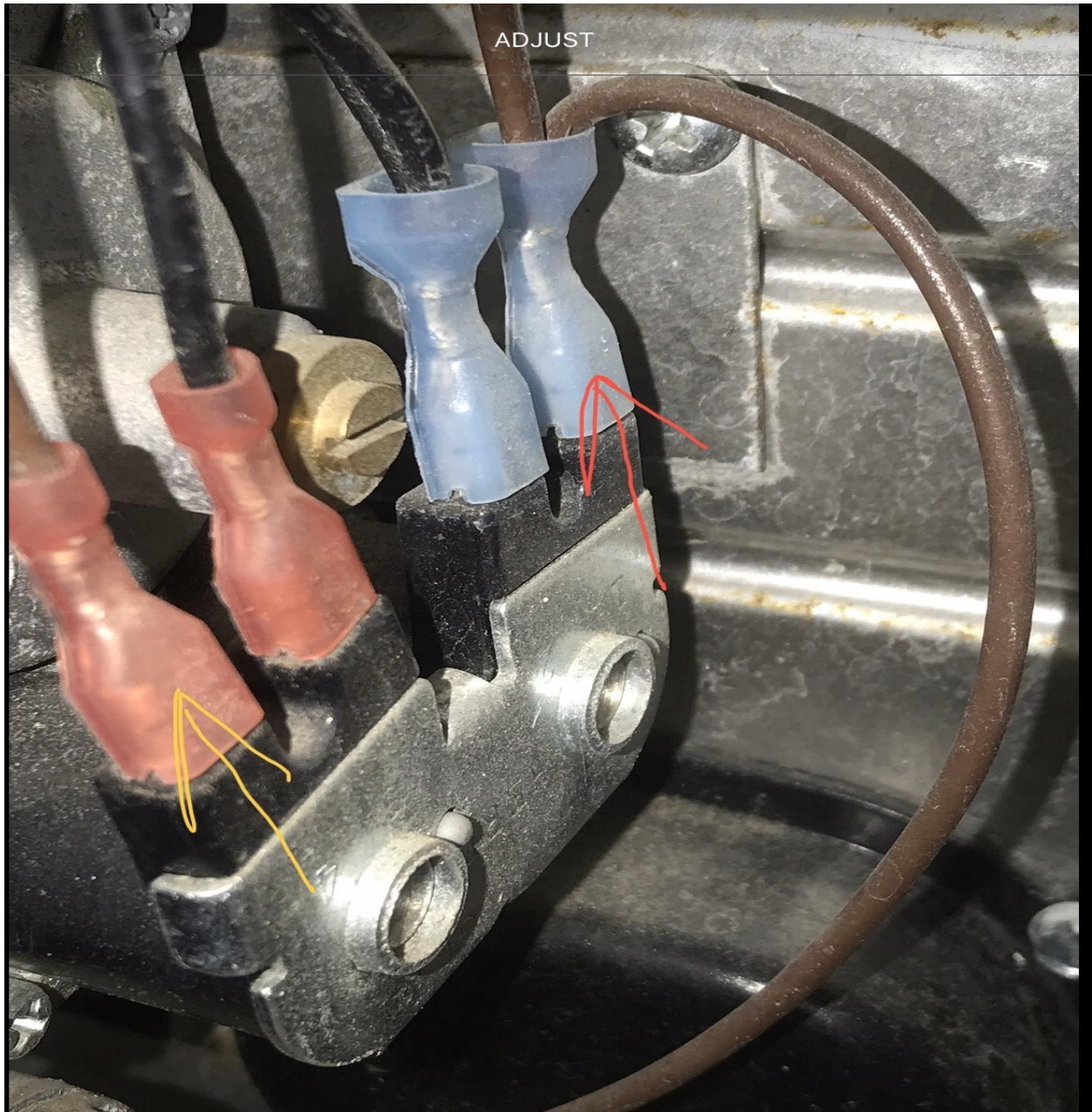
Remove BOTH connections from solenoid circled in yellow..remember which connector went where..

Now use the multimeter in Ohms scale and measure across the two connection points on the solenoid you removed wire leads from... should read around 40 to 50 ohms...

If you get NO reading across the solenoid connection points solenoid is bad.. if the meter reads Full scale solenoid is bad.. reinstall wires you removed and repeat the same process for the other solenoid circled in Red. Readings should be 40 to 50 ohms if good...

If one solenoid reads bad I would order and replace both at the same time. If both solenoids read good during ohm measurement we will now verify whether we are getting a 12 volt DC signal from the water heater control module

7. To measure the 12 volts DC you will need helper inside turn on water heater propane switch so that you can measure and verify control module is sending 12 volts to each of the solenoids



Remove wire marked with yellow arrow.. place multimeter in DC scale. Touch Red lead from meter to wire connector removed and Black meter lead to a ground on the water heater...

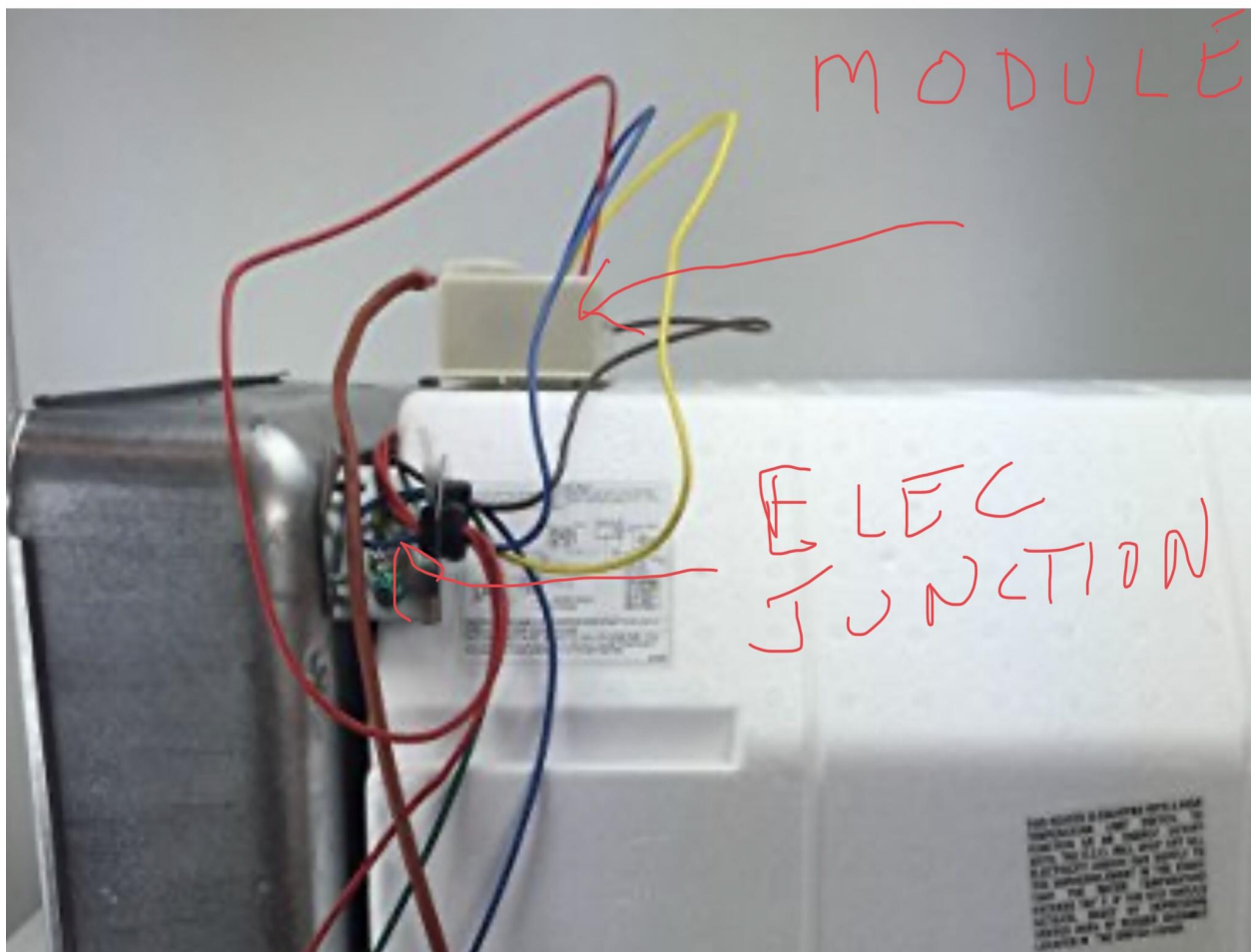
Have a helper turn on water heater switch inside and you should see 12 volts DC.. turn heater switch off and replace wire..

Remove other lead from other solenoid connections marked in Red..place Red lead from meter to the wire you just removed and Black lead from meter to ground on the water heater and have the helper turn the heater switch on..

You should see 12 volts indicated on the meter..

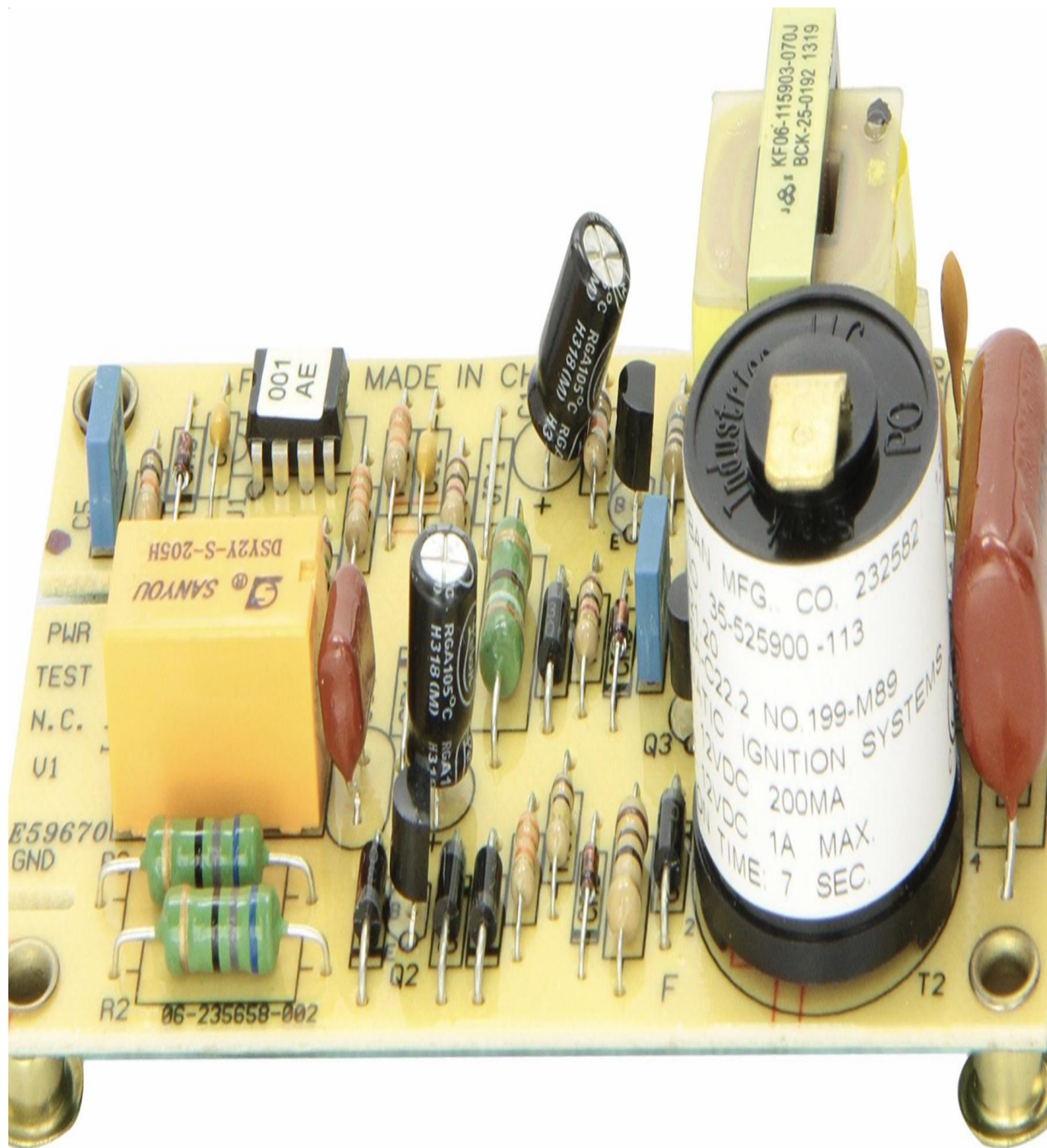
If you don't have 12 volts on both leads measured above then the most likely culprit is a failed water heater control module.

The water heater control module is usually just taped to the foam insulation on the top or side of water heater.. you can usually access this by opening a cabinet lower door and removing a false panel to be able to get to the control module.



The control module is seen in this pic and is easy to replace. Take pics of where all the wires are attached. Remove defective module and order replacement module.. install module using pic you took BEFORE you removed wires and install wires.

Pic of water heater igniter module after plastic cover is removed



Test operation of water heater in propane mode and verify it works.

If you did not hear any “popping” sound when the water heater switch was turned on you can remove the igniter assy and clean it and inspect for any signs of damage.

Igniter assy pic...

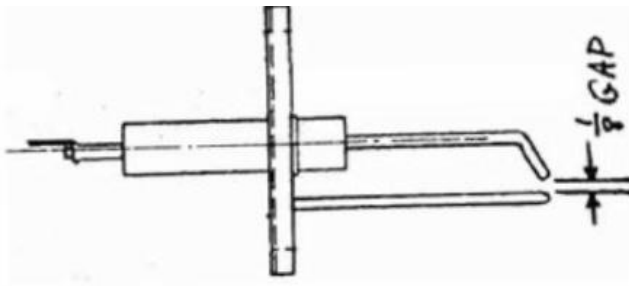


To remove the igniter simply remove 1 bolt circled in Blue.. slide the assembly out and inspect electrode for corroded or sooted up condition.. clean with steel wool being careful not to disturb the position of flame sensor electrode

Pic of the igniter assy after it's removed



Gap measurement at electrode to ground probe..



Reinstall assy and test water heater in propane mode by turning on the water heater switch inside. If furnace doesn't fire up and no popping sound is heard indicating that electrode is firing then either igniter is bad or water heater control module has failed

This PDF section has discussed the basics of how to troubleshoot and repair the propane section of your Suburban water heater.

Safety is paramount when working around energized electrical systems and propane. Double check your wire connections and use a mix of soapy water to verify NO propane leaks if you have disconnected any propane lines.

I assume no responsibility for any damage or injury incurred..

PDF created by Chuck Steed 04/26/2021 correct as written